REMARKS

Claims 1-3 are now pending in the application. Claims 1-3 are currently amended to overcome the objections to the claims and to improve readability, and claim 4 is newly added. The applicant submits that the amendments are formal in nature and that new matter has not been added. The Examiner is respectfully requested to reconsider and withdraw the rejection in view of the amendments and remarks contained herein.

Objection to the Claims

The claims stands objected to for certain informalities. Applicants have amended the claims according to the Examiner's suggestions. Therefore, reconsideration and withdrawal of this objection is respectfully requested.

In response, claim 1 has been amended by replacing the expression "the same" in lines 3, 4, 5 and 6 by the expression "a single"; and the expressions "the main" in line 7, "the priority" and "the just"in line 10 by the expressions "a main" "a priority" and "a just", respectively, to avoid lack of antecedent basis.

In addition, a new dependent claim 4 has been added to recite multiple routers, as implied by the expression "a router or routers" in line 3 of original claim 1.

Comments on the Rejections Under 35 USC 112

The rejection under 35 USC §112, 1st Paragraph, set forth in item 3 on page 2 of the Official Action, is respectfully traversed on the grounds that the expression "multiple interfaces become main interfaces simultaneously" in line 8 of claim 2 is supported by the third paragraph of the "Detailed Description of the Invention" part of the application, which contains the sentence: "*If several interfaces become main interfaces simultaneously, each interface compares its own priority with the priority involved in received VRRP packet*," exactly as claimed.

The rejection under 35 USC §112, 2nd Paragraph has been addressed by amending the claims to spell out antecedents and improve readability. In particular, the expression "if so" in line 3 of claim 2 has been replaced by the expression "if the priority involved in the VRRP packet received by a backup interface is higher than the priority configured to the backup interface", and the expression "otherwise" in line 3 of claim 2 has been replaced by the expression "if the priority involved in the VRRP packet received by a backup interface is not higher than the priority configured to the backup interface." In addition, the expression "further comprising" has been replaced by the expression "wherein said step of one backup interface becoming the main interface and replacing the original main interface comprises", and the expression "the VRRP packet received by a backup interface" has been replaced by the expression "the VRRP packet received by the backup interface."

Comments on the Rejections Under 35 USC 102(e)

The rejection of claims 1-3 under 35 USC 102(e) as being unpatentable over Shinomiya (US 2003/0037165) is respectfully traversed on the grounds that the Shinomiya publication fails to disclose or suggest the positively recited steps of:

- connecting **multiple interfaces** of a router to a **single LAN** and adding the interfaces to a single multicast group; and
- configuring a single virtual router number and a single virtual IP address to said interfaces to make said interfaces join a single virtual router.

Instead, Shinomiya describes a method in which, for each router, there is only one interface connected to a certain LAN and no other interfaces are connected to the same LAN (See Shinomiya, paragraphs [0048]).

The applicant respectfully submits that Shinomiya therefore fails to teach or suggest each and every limitation set forth in the pending claims. Amended claim 1 specifically recites a method for implementing router interface backup with VRRP in which multiple interfaces of a router are connected to a single LAN and are added to a single multicast group. The interfaces are configured a single virtual router number and a single virtual IP address to make these

interfaces join a single virtual router. A main interface and backup interfaces are selected according to their respective priorities among said interfaces. The main interface sends VRRP multicast packets to all backup interfaces periodically. If a priority involved in a just received VRRP multicast packet is zero or the backup interfaces have not received any VRRP multicast packet within a predetermined period, one backup interface becomes the main interface and replaces the original main interface.

The Shinomiya publication, on the other hand, at best discloses a router redundancy using VRRP. A virtual router is constituted by a plurality of routes. One of these routers is assigned as the mast router and transmits an advertisement packet indicating the router itself being the master router to the whole routers except the master router which constitute the virtual router. The backup routers monitor an advertisement packet to confirm that the master router is working. If an advertisement packet is not received for a predetermined period, one of the backup routers may function as the master router. (See Shinomiya, paragraphs [0043], [0045], [0046], [0069] and [0070]).

This is a significant difference. The problem solved by the method of amended claim 1 is not addressed by Shinomiya. According to Shinomiya, when a router in a LAN fails it will be replaced with another router automatically. However, when there is only one router in a LAN it is not possible to provide backup for this router. As a result, Shinomiya fails to solve the problem of low reliability that is addressed by the present invention, particularly in the case in which there is only one router in the LAN.

In amended claim 1, multiple interfaces of one router are connected to a single LAN. Thus, there is always more than one interface of one router connected to a single LAN. In this way, the solution of claim 1 implements backup between interfaces without requiring multiple routers. In case of one router being used, the solution of claim 1 implements backup between interfaces of the router, which avoids network failure when one interface of the router fails. In cases of multiple routers being connected to a single LAN, at least one router may also have more

than one interface connected to the LAN, which improves the reliability of the network. In contrast, Shinomiya provides, for each router, only one interface connected to a certain LAN and no other interfaces are connected to the same LAN. (See Shinomiya, paragraphs [0048]). It can therefore be seen that, compared with the method of Shinomiya, in which different interfaces of one router are connected to different LANs, the method of the invention changes not only the entire networking structure for multiple routers, but also a single networking structure for one router.

In summary, because the technical features "connecting multiple interfaces of a router to a single LAN and adding the interfaces to a single multicast group; configuring a single virtual router number and a single virtual IP address to said interfaces to make said interfaces join a single virtual router;" are not disclosed or suggested by Shinomiya, withdrawal of the rejection of claims 1-3 as anticipated by the Shinomiya patent is respectfully requested. Furthermore, it is respectfully submitted that the claimed invention is not obvious in view of the method disclosed by Shinomiya since Shinomiya does not suggest how to solve the problem of how to provide redundancy for a simple network, for example with only one router, and therefore allowance of each of claims 1-4 is requested.

Conclusion

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Expedited passage of the application to issue is therefore requested.

Respectfully submitted,

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